

Hail.—The following have been reported in addition to those mentioned before: on 1st, Creswell, Kan.; 5th, Genoa, Neb.; 10th, Cresco, Ia.; 15th, Houston, Tex.; 16th, Hudson, Cleveland, and near Cincinnati, O.; 17th, Sebec, Me.; 20th and 28th, New Germantown, N. J.; 25th, Astoria, Or., and Milford, Del.; 28th, Danville, Ky.

Droughts.—In the southern part of New Mexico, a scarcity of water is reported on the 3rd.

Floods.—On the 6th, 7th and 8th, in the vicinity of La Crosse, Wis.; 9th, at Contoocookville, N. H., mills stopped; 19th, lower part of Galveston flooded by water being driven in from the Gulf during the southeast gale; 25th and 26th, rivers in New England high and overflowing at many points; 28th, Illinois and Sangamon rivers, Ill., out of their banks; 29th, Billerica, Mass., Concord river higher than for 40 years past; 30th and 31st, Cairo, floods and break in levee.

RELATIVE HUMIDITY.

The average relative humidity for the month ranges on the New Jersey and New England coasts from 70 to 78 per cent.; Middle Atlantic States, 56 to 68; South Atlantic States, 58 to 60; Tennessee and the Gulf States, 59 to 72; Ohio and the Upper Mississippi valleys, 64 to 74; Lake region, 69 to 82; lower Missouri valley, 69 to 80; valley of the Red River of the North, 79 to 87; Pacific coast, 67 to 79. *Dry Stations.*—Santa Fé and Colorado Springs, 45 per cent.; Denver, 53; Lynchburg, 56; Bismarck, 57. *Moist Stations.*—Mount Washington, 88; Pembina, 87; Milwaukee and Albany, 82; Cleveland, Erie and Evanston, 81; Omaha, 80.

WINDS.

Prevailing Winds.—By an examination of chart II, it will be seen from which direction the winds have blown most frequently. The arrows fly with the wind. Generally, they point from the high towards, inclining somewhat to the right of, the low pressure.

Total Movements.—The largest total movements of the air, excluding directions, have been recorded at the following stations: Pike's Peak, (30 days only,) 19,781 miles; Sandy Hook, 15,815; Long Branch, 14,376; Thatcher's Island, 13,600; Barnegat, 12,865; Dodge City, 11,571. The smallest total movements reported are: Portland, Or., 3,162 miles; Virginia City, 3,590; Lynchburg, 3,920; Burlington, Vt., 4,643; Nashville, 4,710; Augusta, Ga., 4,920.

Maximum velocities, in addition to those given above, have been recorded at Gainesville, Ga., 70 miles per hour on the 19th; Freehold, N. J., over 60, Stapleton, N. Y., estimated at 70, and Flushing, N. Y., N. E., 60, 28th; Mt. Washington, N. W., 96, 6th, S. E. 76, 21st, and N. W. 100, 22d.

Tornadoes are reported to have occurred at Hazel Green, Grant Co., Wis., and Hassard, Rall's Co., Mo on the 10th; near Larned, Kan., 5th; South Hartford, Washington Co., N. Y., 21st.

VERIFICATIONS.

Probabilities, as worked up three times each day and issued to the public, of the weather for the ensuing twenty-four hours, have been carefully compared with the actual conditions following. The per centage of verifications has averaged 93.7 for New England; 95.4 for the Middle States; 91.7 for the South Atlantic States; 94 for the Eastern Gulf States; 83.7 for the Western Gulf States; 91.8 for Tennessee and the Ohio valley; 90 for the Lower Lake region; 91.3 for the Upper Lake region; 89.4 for the Upper Mississippi valley; 85.5 for the Lower Missouri valley. The average per centage of verifications for the month is 90.6.

Cautionary Signals.—Out of 167 displayed at stations along the Gulf and Atlantic coast, Milwaukee and Grand Haven, the only stations along the Lakes warned during the month, 159 were justified, and 8 not justified, by succeeding wind velocities of 25 miles per hour. It may be stated here that, during cold weather, especially while snow is falling and the wind blowing on the coast, navigation becomes dangerous with even less than 25 miles of hourly velocities. A few cases have been reported in which the signals have been ordered late; and 40 from scattered stations, with hourly velocities ranging from 25 to 54 miles, where signals were not ordered to be displayed.

NAVIGATION.

Muscataine, Iowa, first boat of season arrived 7th; Achusnet river, at Fairfield, Mass., was clear of ice 7th, frozen over 20th, clear 23d; Plattsmouth, Neb., heavy ice in Missouri river 28th; ice on the Hudson river remained firm at Newburgh, 2d, moved out the 4th, river open to Poughkeepsie and navigation resumed the 6th; navigation not been suspended on Seneca lake, N. Y., during the winter; Buffalo, N. Y., ice in lake six inches thick 1st, ice went out of river 8th; Middletown, Conn., river free of ice 9th; New York steamer arrived the 17th; Mississippi opened at Dubuque, Iowa, 13th; river clear at Dayton, 4th and 24th, first boat arrived 7th; ice went out of harbor at Cleveland, Ohio, 6th; Rochester, N. Y., ice went out of river 7th; Omaha, Neb., ice went out of river below bridge 31st; Grand Haven, Mich., navigation resumed 11th; forty miles south of Sable island, Nova Scotia, navigation obstructed by ice fields.

Ice.—At Green Spring, Ala., ice formed half inch thick mornings of 21st and 22d; Gainesville, Ga., ice three-sixteenths inch thick on fruit trees, &c., 19th; Point Pleasant, La., ice half inch thick 21st; Brookhaven, Miss., ice formed 21st and 22d; Spartanburg, S. C., ice formed 29th and 30th; Terrell, Texas, ground frozen half inch 29th; Belmont Farm, Texas, ice sufficiently thick to bear a man's weight 21st; Corsicana, Texas, ice formed 21st; North Palermo, N. Y., mill-pound ice fifteen inches thick the 6th; Malone, N. Y., pond ice twenty inches thick 7th.

Height of Rivers.—Upon chart No. III is printed a table giving the highest and lowest marks and the dates upon which they occurred. The Red river fell quite steadily from the 1st to the 11th, and rose almost continuously after that date. The Missouri, at Leavenworth, fell slowly until the 5th, after which it rose and fell through intervals of three or four days. The Mississippi, at Vicksburg, on the 31st, was within three inches of the highest given for the 1st and 4th; at Cairo, the "danger point" was reached on the 22d, and continued above afterwards; at Memphis, "danger point" reached on 30th; at Vicksburg, above "danger point" from 1st to 13th, below from 14th to 26th, and above from 27th to close of month. At Nashville, the Cumberland fell 2 feet 2 inches from 1st to 9th, rose 20 feet 2 inches by 21st, fell 8 feet 8 inches by 24th, reached highest 30th, and fell 3 feet next day. The lower Ohio rose quite steadily after the dates of the lowest water marks.

WATER TEMPERATURES.

The maximum and minimum temperatures only are given in the table on chart No. II, for stations along the lakes, rivers and coasts. The least range, 1°, was recorded at Duluth, Detroit and Milwaukee; the greatest range, 24°, at Shreveport.

ATMOSPHERIC ELECTRICITY.

Auroras.—Those of the 24th, 25th and 26th were very extensively observed. Displays were reported as seen on the 1st at Albany, N. Y., Davenport, Iowa; 12th, Monticello, Iowa, Rocky Run, Wis.; 13th, Florida, Mass., Stapleton, N. Y.; 14th, Frankfort, Mo.; 24th, Portland, Me., Waltham, Mass., North Argyle and Malone, N. Y., Woodstock, Vt., Mt. Washington, N. H.; 25th, Afton, Cresco, Noro Springs and Monticello, Iowa, Duluth and Minneapolis, Minn., Rocky Run, Utica, LeRoy and La Crosse, Wis.; 26th, Acton, Me., Lyndon, Evanston and Somonauk, Ill., Duluth, Minn., Afton, Cresco and Monticello, Iowa, Grand Haven and Adrian, Mich., Frankfort, Mo., Utica, Rocky Run, Embarrass, Milwaukee, La Crosse and LeRoy, Wis., Virginia City, Nev.; 27th, Stapleton, N. Y., Duluth, Minn.; 29th, Hutchinson and Breckenridge, Minn.; 30th, Stapleton and Malone, N. Y., Milwaukee, Wis., Breckenridge, Minn.; 31st, Stapleton, N. Y., Hillsboro', Ohio, Duluth, Minn.

Thunder-storms.—At two or more stations in Alabama, on the 12th, 15th and 19th; Arkansas, 11th and 15th; Connecticut, 15th and 29th; Georgia, 16th and 20th; Illinois, 5th and 10th; Indiana, 10th and 11th; Iowa, 5th and 10th; Kansas, 5th, 10th and 31st; Louisiana, 11th, 15th and 19th; Maryland, 15th and 28th; Massachusetts, 17th and 28th; Michigan, 10th; Mississippi, 10th; Nebraska, 5th and 10th; New Jersey, 13th, 16th and 28th; New York, 12th, 13th, 26th and 28th; North Carolina, 12th; Ohio, 10th, 11th and 16th; Pennsylvania, 12th, 13th, 16th and 28th; South Carolina, 11th and 12th; Tennessee, 11th; Texas, 5th, 14th, 15th and 19th; Virginia, 25th and 28th; Wisconsin, 10th.

OPTICAL PHENOMENA.

Mirage, recorded as follows: At Ellinwood, Kan., 7th; Moorhead, Minn., 1st, 12th, 13th, 18th, 20th, 22d, 28th, 29th and 31st; Fort Lyon, Col., 18th; New London, Conn., 1st, 3d, 4th and 28th; Breckenridge, Minn., 18th, 30th and 31st; Mt. Washington, N. H., 11th.

Solar Halos.—1st, Cal., Iowa, Kan., Nev.; 2d, Conn., Dak., Iowa, Kan., Mich., Minn., Wis.; 3d, Iowa, Kan., Me., Minn., N. M., Wis.; 4th, Conn., Del., Ga., Ill., Ind., Ky., Me., Mass., Mich., N. H., N. J., N. Y., N. C., Ohio, Penn., Tenn., Wis., Va.; 5th, Iowa, Me., Mass., N. H., N. Y., Ohio; 6th, Me., Minn., Penn., Ohio, N. J.; 7th, Iowa, Me., N. C.; 8th, Neb., Ohio, Mich.; 9th, Mich., N. Y., Ohio, Wis.; 10th, Miss., Neb., Ohio; 11th, Cal., Dak., Ga., Iowa, Mich., Minn., Nev., N. Y., Va.; 12th, Kan., Neb.; 13th, Ill., Iowa, Kan., Tex., Wis.; 14th, Ind., Ky., M. T., Ohio, Tenn., Va.; 15th, Me., Vt.; 16th, Me., Mass., Nev., N. H., N. Y., N. C., Vt.; 17th, Minn., R. I.; 18th, Dak., Iowa, Kan., La., Minn., Miss., N. H.; 19th, Dak., Ill., Ind., Iowa, Ky., Mich., Minn., Neb., Nev., N. Y., N. C., Ohio, Wis., W. Va., Va.; 20th, Conn., Iowa, Kan., Me., Mass., Mo., Neb., N. H., N. Y., Vt.; 21st, Ind., Kan., N. Y., Oregon; 22d, Ill., Ind., Iowa, Ky., Ohio; 23d, Conn., Mass., Mich., Nev., N. H., N. J., N. Y., Ohio, Penn., Wis.; 24th, Kan., Mich., N. Y.; 25th, Me., Nev., Wis.; 26th, Cal.; 27th, Ill., Ind., Iowa, Mich., Minn., Nev., Ohio, Penn., Wis., W. Va., Va.; 28th, Conn., Iowa, Kan., Wis.; 29th, Ill., Wis.; 30th, Del., Iowa, Me., Neb., N. H., Ohio, Vt.; 31st, Neb.

Lunar Halos.—1st, Dak., Me., N. Y., Utah; 2d, Col., Ill., Iowa, Kan., Mo., Mich., Neb., N. H., N. M.;